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Special Earth Day 20 Issue

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Editor's Note

This special issue of *Connecticut Environment* is dedicated to the celebration of Earth Day 20. Someone said that never before in the history of the planet have so many people joined together for one great common purpose — the shared experience and responsibility of being a creature of this earth. This is very sophisticated, very high class thinking. It goes beyond the level of the individual, beyond nationality, beyond race. That has never happened before. It's very exhilarating. Whatever else may be said of 20th century humanity, we are creatures who have it within us to conceive of something like Earth Day. That in itself is good news.

Now, when many people come together for a common purpose, a kind of magic sometimes happens. That combined, concentrated energy tends to perpetuate itself; it becomes greater than the sum of its parts. There is great potential in this Earth Day 20. We don't know how great because this has never been done on such a scale before. But magic is possible here.

I believe it is possible that the combined good energy of so many people on this Earth Day may indeed be powerful enough to change the destiny of this planet. I believe it is possible that the great planetary prayer of so many members of the Earth family — a prayer of unselfishness and concern and hope — may be answered on this Earth Day. It is my belief that we may be about to turn a corner.

So, with hope, with the faith that yes, we can make the world a better place for our children, we dedicate this issue of our magazine to Earth Day 20. May this Earth Day bring healing and harmony; may all creatures live with greater respect for each other and for the lovely planet that is our home.

R.P.

Message from the Governor



TWENTY YEARS AGO, THE MOVE TO HEIGHTEN AWARENESS of the critical importance of a safe and healthful environment and of humankind's proper place in the earth's ecology culminated in the signing of the National Environmental Policy Act. This landmark legislation, which took effect on January 1, 1970, demonstrated our national resolve to improve the environment and learn more about nature, ecology, and the impact of our way of life on the world around us.

In the past several years alone, we have acquired thousands of acres of open space — rolling hills, lakes, and greenery that our children and our children's children will be able to enjoy. We have committed \$1.8 billion to purifying our water, and our tight auto emissions control standards are moving 200,000 tons of pollutants from the air annually. Connecticut has indeed built some of the strongest environmental programs in the nation. I am proud of our progress. I am proud of the natural beauty of our area and grateful to all the people of Connecticut who have worked so hard for its protection.

In this state, we have been endowed with a rich natural and cultural heritage, passed on for safe-keeping by those who have come before us. This heritage is priceless and absolutely irreplaceable. We have accepted the charge of guarding this heritage and have done very well in the past 20 years. As we celebrate Earth Day 20, let us recommit ourselves to continue the progress that has been made and renew our pledge to environmental reclamation and preservation and to protecting what is without a doubt one of the greatest treasures we have to pass on to future generations of Connecticut citizens.

William A. O'Neill
Governor

Message from the Commissioner

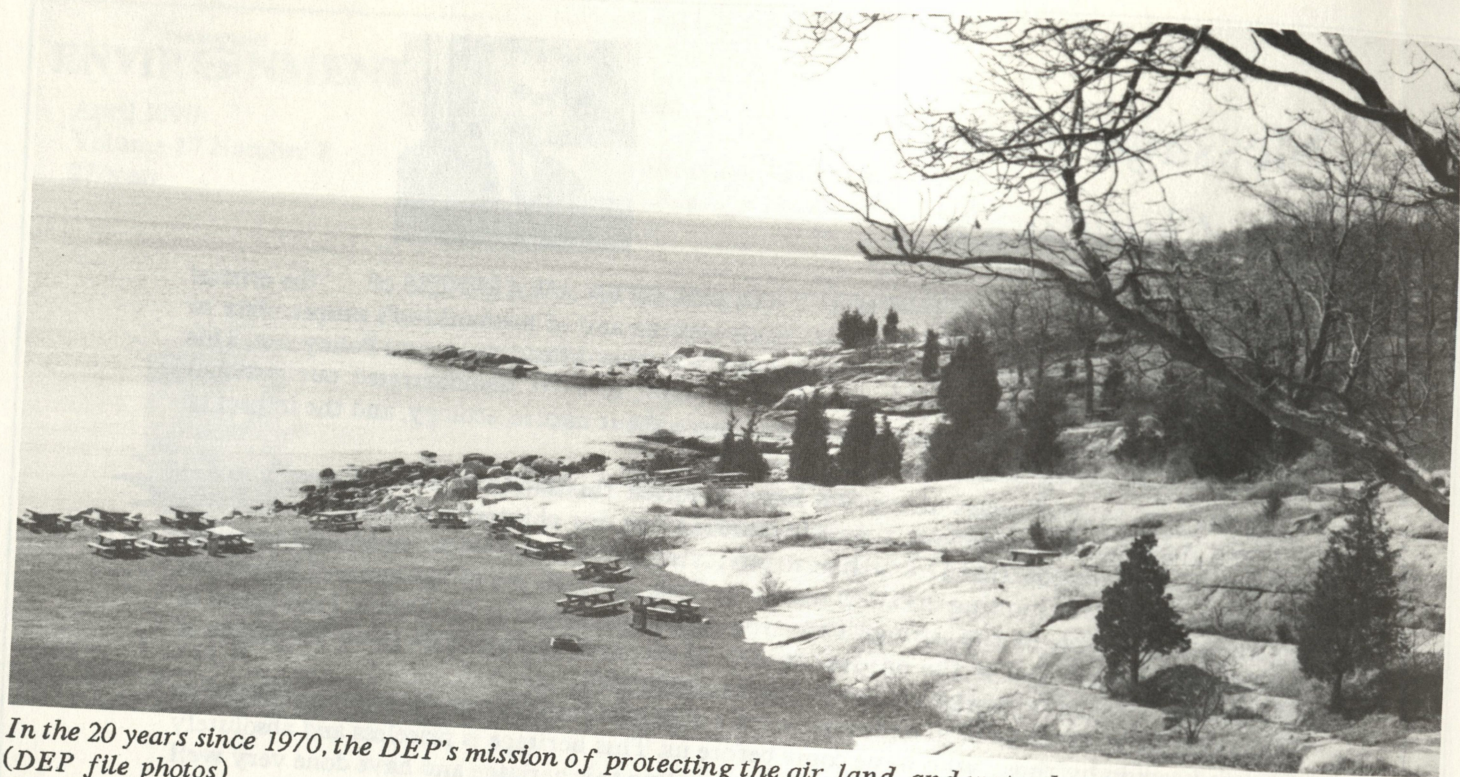


ONE OF THE BIG DIFFERENCES BETWEEN EARTH DAY 1970 AND EARTH DAY 1990 is the existence of government agencies with broad powers to protect the environment. Neither the federal EPA nor our own DEP was around on the first Earth Day. Each agency owes its creation to the forces of public concern that were marked and celebrated on the first Earth Day.

Stewardship of our environment is everybody's job. Credit for the two decades of accomplishment described in this issue of *Connecticut Environment* is widely shared; environmental activists, business and industry managers, scientists, educators, legislators, mayors, and governors, to name a few. But surely no group can claim more responsibility for environmental progress in Connecticut than the dedicated people at DEP.

During the 1980's, it was the fashion to exalt the virtues of self-interested individuals and unregulated industries and to deride the contributions of government in solving society's problems. This attitude never made much sense in the field of environmental protection where we as a community *must* act together to achieve our goals. So three cheers for the environmental professionals, yes, the bureaucrats of DEP. On this Earth Day, let's renew our faith in what we can do together to serve the public and protect our precious piece of the globe.

Leslie Carothers
Commissioner, DEP



In the 20 years since 1970, the DEP's mission of protecting the air, land, and water has become increasingly complex.
(DEP file photos)

20 Years of Environmental Protection

by
Margot Callahan
Senior Communications Officer

Where were you April 22nd 1970?

Kindergarten. Back working at old FP (favorite polluter) Inc. Celebrating the first Earth Day ... cleaning up litter ... rallying on the New Haven Green ... taking a Yale Law School-sponsored scenic canoe trip along the Connecticut, its highlights the river's sewage treatment plants and industrial discharge pipes.

Maybe picketing a polluter or protesting automobile pollution by burying a car (a favorite tactic of students in some areas, we hear).

More than 20 million people participated in Earth Day 1970 — at 2,000 colleges and universities, 10,000 grade and high schools, and in several thousand communities — according to a 1980 article by U.S. Senator Gaylord Nelson (D-Wisc., 1957-81), a member of the nine-person national organizing committee.

Over the intervening 20 years, it's safe to say that, in steady increments, the environment has come closer to home and has risen higher in the consciousness of just about everybody.

While Earth Day 1990 student planners may express reservations about participating in celebrations with Connecticut industries, going out to picket a polluter doesn't

seem to be a prominent feature on many Earth Day 1990 calendars. Individual environmental action is "in." (And the DEP sincerely hopes nobody has any plans to bury a car.)

In other words, things have changed. But how much? The Connecticut DEP owes at least some of the momentum that led to its creation by the Connecticut General Assembly in 1971 to enthusiasm aroused by that first Earth Day. What have we done for Connecticut's environment over these 20 years?

"It was easier to be an environmentalist in 1970," says John Anderson, DEP's deputy commissioner for Environmental Quality. "Everybody was *for* clean air and clean water and unpolluted land. Who can be *against* that? But there were no programs then to accomplish it.

"Now we have them. But once the programs are in place, it's difficult to get the funding to carry them out and the commitment to see that they get done. We've done a lot with really very little.

"And it's another thing to change your lifestyle — to get people to change their lifestyles."

WATER: YOU CLEAN UP BIG PROBLEMS, THEN GO FOR THE SUBTLER SOURCES

Since the passage of Connecticut's Clean Water Act (1967) and the 1972 Federal Water Pollution Control Act Amendments, Connecticut has effectively eliminated many of the "gross" causes of surface water pollution — by regulating municipal sewage treatment plants and industrial dischargers to rivers and streams.

Over the past 20-plus years, Connecticut's municipal sewerage construction grant program has invested close to two billion dollars in upgrading towns' sewage treatment plants, an effort that has eliminated vast amounts of untreated or partially treated sewage that was once discharged to streams.

Within the last year, the last two sewage treatment plants in the state with only primary treatment (which removes about 35 percent of oxygen depleting pollutants) were upgraded to the federally required secondary treatment (which removes over 85 percent of this pollution). Among the state's 82 plants, today 11 either have or are adding even more advanced levels of waste treatment.

In 1985, Connecticut created the "Clean Water Fund," a grant and loan program for Connecticut towns designed to replace the dwindling levels of federal funds being appropriated for sewage treatment improvements.

Over 1500 municipal and industrial dischargers operate under permit in Connecticut. The DEP has imposed effluent limits on toxic pollutants that are, in most cases, far stricter than federal limits. Furthermore, beginning in 1988, the DEP's Aquatic Toxicity program has imposed the permit requirement that all dischargers of toxic substances demonstrate, via tests on live organisms, that their discharges have been treated to levels that will protect aquatic life from residual in-stream toxic impacts. This program is expected to substantially advance efforts clean up rivers with high concentrations of industrial dischargers.

Though medical waste initially created much of the news, Long Island Sound's major problems are the result of more conventional sources of pollution, like sewage treatment plants. Since 1985 Connecticut has been an active participant in interstate programs to monitor and manage Long Island Sound. In 1988 the Sound was designated an "Estuary of National Significance," making it eligible for federal National Estuary Program funding.

To help insure that the benefits of improved facilities were not lost to improper operation, the DEP began its program of sewage treatment operator training programs at the Bethany Training Center in 1985.

Today over 65 percent of Connecticut's 880 miles of major rivers and streams meet the water quality goals proposed for them, and an additional 27 percent partially meet goals (e.g., healthy aquatic habitat but not recommended for swimming). The major problems which remain tend to be old, historically polluted harbors and industrial areas and combined storm and sanitary sewer overflows. As an example of rivers showing dramatic improvements, the Naugatuck was devoid of aquatic life

in 1970; by the mid '80s its upper 22 miles were clean enough to stock experimentally with trout.

During the 1980s alone, over 1000 water pollution abatement orders were issued, almost 500 suits brought, and over 2,000 permits with stringent limits were issued to control, and in many cases eliminate, the discharge of pollutants. In addition, over \$3 million in penalties has been assessed against violators in the last two years.

Once you've cleaned up the big sources, you go after the smaller ones. The DEP just recently issued a draft "non-point source" program in an attempt to coordinate the more than 90 strategies developed since the late 1970s for cleaning up the myriad smaller sources of water pollution, such as construction-related erosion, urban and agricultural runoff, fertilizers and pesticides, and septic system failures, to name a few.

AFTER AGES OF PUMPING IT OUT AND POURING INTO IT, WE "DISCOVERED" GROUND WATER

In 1980, Connecticut developed a comprehensive statewide ground water classification, monitoring, and protection program that parallels the state's surface water programs and that has been a model for the entire country.

Ground water considerations now influence virtually every aspect of environmental activity in the state — from surface water and wetlands protection to waste and hazardous waste management and pesticides and underground tank programs to air quality regulations. (One thing we've confirmed, without a doubt, in the last 20 years is that if you take a pollutant out of the air and dispose of it on the land and it then leaches down to the ground water, you haven't solved a problem — you've just moved it around.)

Aquifer Protection legislation (1987) calls for taking the state's ground water protection effort one step further. The DEP is currently developing a program to address the land use questions involved in preserving significant portions of the 90 percent of the state's ground water presumed suitable for drinking.

Over the past decade, over 1000 wells in the state serving approximately 150,000 people have been found to



The average citizen of Connecticut produces five pounds of garbage each day. Recycling will be one of the challenges of the '90s.

be contaminated, and under two important pieces of 1980s state legislation, responsible parties are now required to provide clean sources of drinking water where they have contaminated a supply.

PROTECTING WETLANDS, COASTAL RESOURCES, CITIZENS

The Inland Wetlands and Watercourses Act of 1972, one of the most comprehensive such laws in the country, set out to restrict alteration and loss of Connecticut's estimated 600,000 acres of wetlands.

Over 20 years, our understanding of this resource has expanded greatly. Meantime, economic growth and consequent pressure for development have made wetlands a dynamic regulatory arena.

The 1987 amendments to the Act required all municipalities to establish wetland agencies (over two decades the DEP regulated from 40 down to about a dozen towns' wetlands) and administer their own wetland regulation programs. They strengthened DEP's role of maintaining oversight (including a requirement of standard statewide reporting of municipal decisions) and offering training to municipal commissioners (some 400 during 1988-89) as well as giving on-site technical assistance to commissions.

Since the implementation of the Connecticut Tidal Wetland Act in 1969, less than 0.1 percent of the state's estimated 17,500 remaining acres of tidal wetlands have been filled and, in fact, some 400 to 600 acres of degraded tidal wetlands were restored during the period.

The Connecticut Coastal Management Act was passed in 1979. Since it went into effect on January 1, 1980, over 7,000 proposed coastal development projects have been reviewed by the 31 participating coastal municipalities, and over \$2 million in state and federal coastal management grant funds have been awarded for planning and regulatory functions and special coastal resource protection and waterfront access projects.

To date, 19 municipalities also have harbor management plans, either in effect or under development, under the Harbor Management Act passed in 1984. Three pilot projects have been implemented and several other projects begun under the Connecticut Coastal Coves and Embayments Program established in 1986.

Increasingly sophisticated monitoring of the state's water supplies has made us more aware that, even in a state with substantial rainfall, allocation becomes more complicated due to competing claims on a finite supply. The Connecticut Water Diversion Policy Act of 1982 provides that after July 1, 1982, a permit is needed for diversion of surface or ground water for any purpose.

The work of the Water Resources Task Force (1982-1985) on planning, management, and coordination of public water supplies led to passage of landmark legislation in this area. The work of a 1989 interagency task force on water conservation led to Connecticut's being one of the first states to establish a policy on water conservation, to set plumbing efficiency standards, and to require



Today over 65 percent of Connecticut's major rivers and streams meet the water quality goals proposed for them.

utilities to conduct residential retrofit programs.

In response to the failures of 17 dams and serious damage to 31 others during the floods of 1982, legislation was passed in 1983 which required the owners of dams to register them and establishes a regular dam inspection program. Over 2,775 of the 4,300 dams in the state are large enough to require registration. In 1986 a statewide network of automated precipitation gauges and transmitters was installed so rainfall can be monitored at the Flood Emergency Operations Center in Hartford.

AIR -- SOLVING BIG PROBLEMS THAT ARE PART OF BIGGER PROBLEMS

The 1970 Amendments to the federal Clean Air Act not only established the federal Environmental Protection Agency but also, for the first time, put teeth into clean air legislation.

The DEP's Air Compliance Unit was established in 1972, and as with other pollution control efforts, the state's initial strategies for meeting the National Ambient Air Quality Standards for five major pollutants, "total suspended particulates" or dust, sulfur oxides, nitrogen dioxides, carbon monoxide, and ozone (standards the states were originally expected to meet by 1975), included:

- registering and permitting stationary pollution sources, such as factories and boilers, and enforcing limits on their emissions;
- a comprehensive *new* source construction and operating permit program which reviews about 300 proposed new sources annually;
- a computerized inventory of sources;
- establishment of a statewide monitoring system (which today comprises some 210 monitoring and telemetry instruments at 63 field sites).

In the early 1970s, Connecticut exceeded the total

suspended particulates standard by about one-third and the sulfur dioxide standard by 20 percent. The state had carbon monoxide readings two to three times the standards and summertime ozone readings above twice the standard.

By 1980 Connecticut had successfully reduced sulfur dioxides by about 75 percent — mainly by its programs limiting sulfur levels in fuels. Particulate levels were down about 20 percent — well below the standards — as a result of the closing of many old municipal incinerators, emissions limits on industry, and restrictions on open burning, among other strategies.

New resource recovery facilities built in the late 1980s must include state-of-the-art controls to insure that their emissions will not cause violations. The Air Compliance Unit also developed (in 1988) an ambient air quality standard for dioxin emissions from these facilities, as well as a program for continuously monitoring them to minimize the conditions that cause dioxin formation.

Over the years since 1972, Connecticut's levels of ozone, the state's major air pollution problem, and carbon monoxide have continued to exceed the standards.

The encouraging news is that ozone levels appear to be steadily declining. All of the 10 highest readings were taken before 1981. A 10-site running average for 1981-89 has declined steadily. And monitoring sites with long histories show generally fewer violations, and at most of them the highest readings recorded each year have declined, even in the face of weather conditions favoring ozone production.

The automobile is, in Connecticut, the major source of carbon monoxide problems (which tend to be localized near busy intersections) and the major in-state source of nitrogen oxides and the hydrocarbon emissions that are the precursors of ozone. The other big contributors to our ozone problem are the states to the south and west of Connecticut — so the state continues to support stiffer federal pollution controls.

As a major strategy in its attempts to reduce automobile-generated pollution, in 1982 Connecticut began its Vehicle Inspection Program, testing vehicles at idle for carbon monoxide and the hydrocarbons that contribute to summertime ozone production. In its seven years of operations well over two million tests have been performed on Connecticut's light-duty vehicle fleet. Results from recent analyses of its first five years found the fleet emitting 59 percent less aggregate carbon monoxide and 46 percent less aggregate hydrocarbons by 1987.

Connecticut's tests also indicate that federal regulation of motor vehicle manufacture has resulted in most late models being "quite clean." While individual cars get cleaner, however, numbers of cars on the highways, mileage driven, and speed (the more fuel used, the more pollution generated) don't seem to be dropping.

The most recent State Implementation Plan proposed a number of additional strategies to lower hydrocarbon emissions, among them a new standard that restricts the vapor pressure of gasoline during the summer months to lessen amounts that evaporate.

In 1986 Connecticut adopted one of the most comprehensive air toxics control programs in the nation, for existing and new sources. Maximum acceptable stack levels have been established for about 650 (of 850) identified toxic substances. Many permits now include specific limits for these substances. Since the program began, some 2,500 stationary sources have been routinely inspected for these substances, along with the criteria pollutants. An additional 1,800 inspections have been done in response to complaints, and a number of 1,000 new applications have been reviewed for these substances.

Alerted by data collected, under SARA (Superfund Amendments and Reauthorization Act) Title III, on routine chemical releases to the air, the program is now looking at "fugitive" as well as stack emissions of many of these substances. (The "SARA" program, by the way, has enlisted 100 percent participation by Connecticut towns in the establishment of emergency planning committees for dealing with potential toxic releases and chemical emergencies. This federal legislation also mandates public access to the information provided under the program.)

WASTE — WE'VE IDENTIFIED THE PROBLEM; IT'S US

Connecticut's average citizen produces in the neighborhood of five pounds of "municipal waste" — garbage and trash — each day. To which you can add the garbage/trash output of business, industry, etc.

The DEP's Solid Waste Management unit was created in October 1971 with responsibility for long range planning for solid waste disposal and oversight of the state's disposal facilities.

Among its earliest efforts were the closing of most of the state's old municipal incinerators. In 1981 a new land disposal siting policy was developed based on water quality standards. During the 1980s approximately 50 land disposal areas have been closed. The Waste Management Bureau continues to monitor ground water around open and closed landfills across the state.

Over 20 years, and a series of statewide solid waste



The automobile is the major source of carbon monoxide problems in Connecticut.

management plans, Connecticut has evolved an approach described as Integrated Waste Management, which emphasizes a combination of waste reduction, recycling, and resources recovery.

During the late 1980s, five resources recovery facilities went on line (Windham: 1981, retrofitted 1989; Bristol, 1987; Bridgeport, 1988; Mid-Connecticut, 1988; Wallingford, 1989). These facilities serve 84 towns (approximately two million people or about 65 percent of the state's population), and one additional system (serving 200,000 people in 11 southeastern Connecticut towns) is under construction.

All five operating plants have received permits from the Bureau of Air Management and are developing protocols, in cooperation with that bureau, for reporting results of their continuous emissions monitoring systems.

A set of regulations for the disposal of resource recovery residues, or ash, calling for double composite lined sites, was adopted in February 1990. Thirteen potential sites were identified based on ground and surface water considerations. PA 89-384 allows for benefits to host towns as well as potential zoning overrides to facilitate the location of suitable ash disposal sites.

In 1986, the DEP developed a statewide plan for regional recycling. It calls for recycling 25 percent of the state's municipal solid waste by January 1, 1991. The legislation also created a \$10 million Recycling Trust Fund to assist with development of regional "intermediate processing facilities" (IPCs) for recycled materials. Nine recyclable items have been designated. Eight recycling regions have been formed. Four of them are undertaking design studies, two IPCs are under way, and two regions already have operating regional programs. Legislation also mandates packaging reduction, quality control to reduce toxics content in packaging, and increased use of recycled fiber in newspaper.

HAZARDOUS WASTES — ON LAND OR SEA OR IN THE AIR

In 1976 the federal Resource Conservation and Recovery Act provided monies to establish state hazardous waste programs, and DEP's Hazardous Materials Management program was set up in 1979.

By 1989 Hazardous Materials Management had:

- completed an inventory in 1987 of the state's active and historic hazardous waste disposal sites (567);
- approved closing of 75 active sites;
- developed a program that regulates the transfer of business or industrial sites which may have suffered hazardous waste contamination, a program which has uncovered 313 "dirty" sites, cleaned up 14, and is working on 55 more;
- implemented the State Superfund Program (PA 87-561 and PA 89-365) which, with \$15 million in cleanup funds, has assessed 256 sites and remediated 52;
- issued over 650 orders requiring clean-ups and 399 notices of violation and referred 281 civil cases to the Attorney General and 78 to the Chief State's Attorney for

possible criminal prosecution.

During fiscal 1989, DEP received and processed 162,148 manifest documents tracking hazardous materials transported into, out of, or within the state.

In the past seven years, Connecticut's PCB program has also completed the cleanup of 125 major and numerous minor sites of PCB contamination.

The hazardous materials program incorporated an existing pesticide control program, established in the early 1970s. This program initially oversaw licensing of all individual commercial applicators of pesticides and made serious efforts to improve skills in this field. During the 1970s farmers and pesticide dealers were added to those who were licensed.

In response to incidents of pollution of drinking water wells by pesticide products, 1985 legislation called for submission to DEP of records of agricultural pesticide uses; 1986 legislation required registration of all commercial pesticide application businesses; and 1987 legislature required that the latter also submit summaries of their applications. The same year the legislature also created a program for collection and disposal of unwanted pesticides from commercial applicators, farmers, and state and local government.

In 1969, before DEP's formation, the Oil and Chemical Spills section had one staff member who responded to 105 oil spill complaints. In 1980, the section responded to over 800 reports. Today a staff of 15 provides 24-hour emergency response to approximately 5,000 reports per year of spills and other emergencies. It also works with 11 town and private oil spill co-ops, provides DEP's emergency coordination during natural disasters, and coordinates DEP response to nuclear emergencies. In 1979, legislation established the Connecticut Emergency Spill Fund so cleanups can be accomplished promptly even when responsible parties are unknown or refuse to pay.

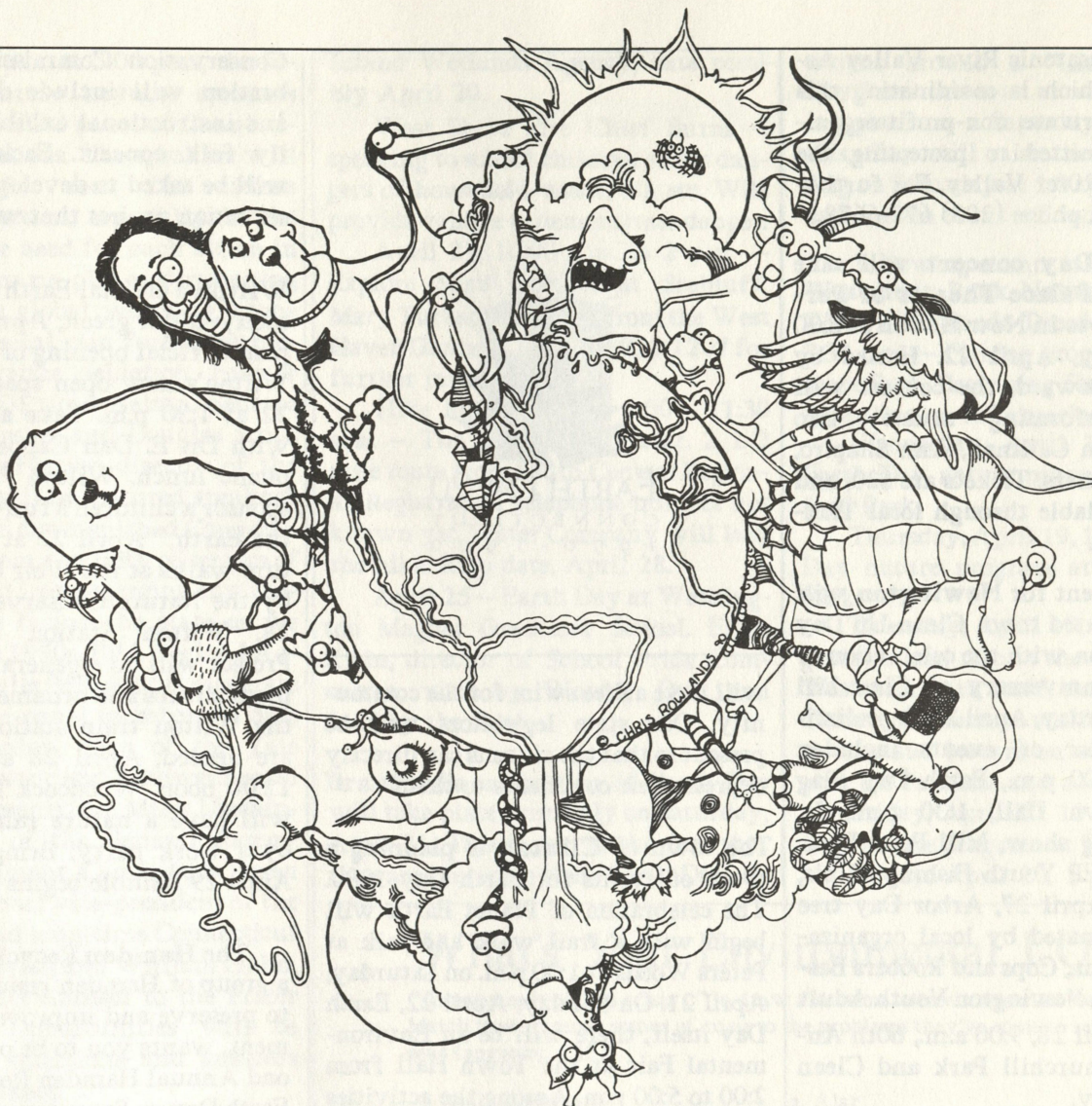
Some 7,000 dry cleaners, photo processors, and similar producers of small amounts of hazardous wastes now fall under the state's Small Quantity Generators program.

Connecticut's Household Hazardous Waste Program, begun in 1984, has worked with 112 towns on a total of 135 disposal days as of January 1, 1990. Establishment of the first permanent regional collection center for household hazardous wastes is expected soon.

The Underground Storage Tank program (established 1985) regulates some 45,000 non-residential underground storage tanks and has overseen the removal from service of about 80 percent of the 12,000 to 15,000 facilities which have exceeded their life expectancies (75 percent of which have been found to be leaking to some degree).

"If asked for one statement," says Deputy Commissioner John Anderson who heads the DEP's Division of Environmental Quality, "I'd have to say, **we** have to ingrain in *every* decision, whether it's an industrial decision or a personal decision, that we are protecting the environment while we're making that decision."

So, plan a scenic Connecticut River canoe trip. Don't bury it, but leave the car at home now and then. And recycle something this Earth Day.



Connecticut Celebrates Earth Day

What follows here is a listing of some — not all, but some — of the wonderful events which will take place throughout Connecticut to celebrate the 20th anniversary of Earth Day. This listing, as long as it is, is not presented as being definitive. There will be lots of others things going on, so please check local, up-to-the-minute listings as well. But, whatever you do — whether it's attending a flag-raising ceremony, listening to the howling of the wolves, learning how to recycle, or just taking a quiet walk in the woods — whatever you do, here are a few ideasonhow you and your family can join in expressing love, respect, and concern for this planet of ours.

The Housatonic Valley Association will celebrate Earth Day 1990 at the Charles Ives Center at Western Connecticut State University, Westside Campus.

There will be a bird walk at

dawn, and other exhibitors will have information about our native plants and forests. Artists and artisans will display and sell jewelry, pottery, and other hand made items, and there will also be vendors of sporting gear. There

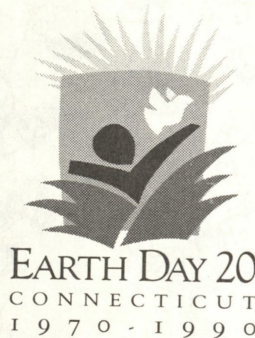
will be a demonstration of canoeing and fly fishing skills on the lake. The local vineyards of Connecticut will host a wine-tasting event throughout the day and an international array of food will be served - without plastic.

The Housatonic River Valley Association, which is coordinating this event, is a private, non-profit organization committed to protecting the Housatonic River Valley. For further information, phone (203) 672-6678.

An **Earth Day concert** will take place at the **Palace Theater of Performing Arts in New Haven** at 8:00 p.m., Sunday, April 22. Hosted by Joanne Woodward, the concert will feature performing artists Arlo Guthrie, Tom Callinan, Ann Shapiro, and many others. Tickets are \$20, and will be available through local Ticketron offices.

The main event for **Newington** will be a coordinated town Clean-Up Day in conjunction with the celebration of the 60th Anniversary of Churchill Park on Saturday, April 28. A preliminary calendar of events includes: April 22, 1:00 p.m., Earth Day Flag raising, Town Hall; 1:30 p.m., Jr. Women's Dog show, Mill Pond Park; 3:00 p.m., DEP Youth Fishing Clinic, Mill Pond. April 27, Arbor Day tree plantings donated by local organizations; 7:00 p.m., Cops and Robbers Basketball game, Newington Youth Adult Council. April 28, 9:00 a.m., 60th Anniversary Churchill Park and Clean Up Day Rally.

Ridgefield's citizens, businesses, government officials, and schools have responded to the Earth Day challenge with enthusiasm. On April 22, several walks through open space will take place. Trails will be cleaned, trees will be planted. The first selectman, Sue Manning, will raise the Earth Day flag and read a proclamation committing the Town of Ridgefield to a responsible environmental course. The local radio station, WREF, will give the public an hour-long program dedicated to environmental education. All the houses of worship will have their clergy express from the pulpit the significance of our Earth and its preservation. Then, from 1:00 p.m. to 4:00 p.m., the Ridgefield Family Y will host an Earth Day Fair. Businesses as well as town commissions, scouts, schools, and day care will exhibit pertinent projects and information. The Y then



will have a free swim for the community. Our state legislators will be present so that the citizens can directly express their comments to them.

The town of **Clinton** is planning a week of events for Earth Day 1990. The celebration of Planet Earth will begin with a trail walk and talk at Peters Woods at 1:00 p.m. on Saturday, April 21. On Sunday, April 22, Earth Day itself, there will be an Environmental Fair at the Town Hall from 2:00 to 5:00 p.m. Among the activities will be a garden composting workshop, an awards ceremony for participating schools and organizations, many exhibits and a free stage show, featuring Tom Callinan, the folk singer.

On Thursday, April 26, 7:30 p.m., in the Rose Room of the Town Hall, there will be a special Recycling Workshop for businesses and public officials.

On Saturday, April 28, Clinton will have a town-wide Rid Litter Plant A Tree Day. To volunteer to help with any Earth Day activities, phone Selma Silverstein at 669-7437.

On Sunday, April 22, **Mansfield** will hold a celebration at the Mansfield Middle School which is located next to the town park. It will be co-sponsored by the Museum of Natural History at UConn and several other organizations, including the Sierra Club and

Conservation Commission. The celebration will include demonstrations and instructional exhibits and a family folk concert. Each organization will be asked to develop a special conservation project that will be ongoing.

Wilton's official Earth Day flag ceremony: town green, April 22, at 12:30 p.m. Official opening of Quarry Head, Wilton's new open space park, April 22 at 1:30 p.m. Take a nature walk with Dr. E. Dan Cappel and bring a picnic lunch. Wilton Family Y will sponsor a children's fun-run, "Run for the Earth," April 22 at 2:00 p.m. Nature walks at the Weir Preserve given by the Nature Conservancy on April 28. Wilton Station Beautification Project will do a general clean up and plant shrubs and ornamental grasses at the Wilton train station. Volunteers are needed, April 28 at 9:00 a.m. to 12:00 noon. Woodcock Nature Center will have a nature ramble followed by a work party. Bring your lunch. April 29 Ramble begins at 12:00 noon.

The **Hamden Recycling Coalition**, a group of Hamden residents working to preserve and improve our environment, wants you to be part of the Second Annual Hamden Recycling Expo/Earth Day on Saturday, April 21, from 9:30 a.m. to 1 p.m. at Miller Memorial Library.

The Recycling Expo, sponsored by the Coalition and part of the town's annual Goldenbells Festival, will offer workshops, displays, speakers, skits, and songs about how to get started with recycling in your home; composting; source reduction (creating less garbage); alternatives to toxic cleaners and other chemicals in your home; the pros and cons of a polystyrene (styrofoam) ban (Hamden's ban was the first in the state), and much, much more.

For further information contact: Melinda Tuhus, 776-7497 or Diane St. Pierre-Maston, 772-4857 (eves.).

On Monday, April 23, a special **Environment/2000 and Earth Day 20 forum** will be held at the **Hartford Stage Company** with speakers of national and state renown. Sched-

uled for 1:00 p.m. to 5:00 p.m., the forum will feature keynote speakers and a distinguished panel of Connecticut representatives. The speakers will focus on the need for citizen "grassroots" action, especially in the 1990s, and the need for such action in the face of major planet-threatening issues such as global warming, ozone depletion, tropical rain forest destruction, and resource depletion. Former U.S. Senator Gaylord Nelson, Senator Joseph Lieberman, and Douglas Scott, national conservation director of the Sierra Club, will be featured speakers.

A panel of distinguished Connecticut experts from a variety of sectors of society will address emerging environmental issues facing the state as we move into the 1990s. EPA Region I Administrator Julie Belaga will moderate the panel. The panel members to date are: John Gordon, dean of the Yale School of Forestry and Environmental Studies; Representative Mary Mushinsky, co-chair of the General Assembly's Environment Committee; Susan Merrow, national vice-president of the Sierra Club and long-time Connecticut grassroots activist; and William Huhn, senior corporate counsel to the Pfizer Corporation. Opportunities will be provided for questions and answers form the audience.

Interested attendees should contact Tina Delaney, Connecticut DEP, at 566-5125 or 566-5391. Registration will be \$10.00, in advance, as space will be limited to 500 attendees.

The following events are planned for **West Haven**: April 20 — Environmental Risk Appraisal, two groups of 25 each from Independent Study Group, University of Connecticut, time and location to be announced, Public Health Director, Leslie Balch, 937-3663.

Planting of 500 seedlings received from the Forestry Department, Coordination of Inland Wetlands and Beth Sabo, Human Resource Commissioner, Planting date to be announced.

Contests — Co-chairpersons Ann Falcone and Lynne O'Neill. Poster contest, elementary schools; essay contest, middle schools; photo contest, high school. Prizes to be awarded from the

Inland Wetlands Agency, date possibly April 20.

West Shore Fire Chief Burns — speaking to school children about dangers of household waste, oil, etc. Will provide vehicle to demonstrate danger.

April 21, 10:00 a.m. to 2 p.m. — Explore Sand Bottom at Seabluff. Mary Turbert in charge from the West Haven Garden Club. Call 933-1207 for further information.

Hike Maltby Lakes, 9:00 - 11:30 a.m. — Tim Hawley, Forester. 2 1/2 mile route from South Central Regional. Registration telephone number not known yet. Water Company will lead the hike. Rain date, April 28.

April 25 — Earth Day at Washington Magnet Grammar School. Ellen Klein, director of School Pride Committee, visit by Woodsy Owl and Smokey the Bear.

Branford's celebration of Earth Day will take place primarily on Saturday, April 21. This is due to the fact that they are centering their Earth Day ac-

tivities around a "Litter Pick-Up Day," and this is an annual event taking place on a Saturday. In light of this, they will raise their Earth Day flag on Saturday at 1:00 p.m. The rain date for the event is Sunday, April 22.

The following events are scheduled at **Westmoor Park Nature Center in West Hartford**: Tuesday, April 17, 7:30 p.m. — Fishing program at Westmoor Park. Beginning fishing and water pollution information.

Wednesday, April 18, 1 p.m. — Earth Day nature program at Beachland Park.

Thursday, April 19, 1 p.m. — Earth Day nature program at Eisenhower Park.

Thursday, April 19, 7 p.m. — Program on acid rain at the main library; Westmoor Park staff, the Connecticut Children's museum staff. Hands on activities and lecture on acid rain, suitable for families and adults.

Friday, April 20, 10 a.m. — Earth Day nature program at Fern Park.

Friday, April 20, 1 p.m. — Earth

What's Your Environmental I.Q.?

"Sometimes it takes a crisis ..." to draw attention to environmental issues. Match these famous scenes of crisis to the problems they've come to represent (answers, p.15):

- | | |
|-------------------------------|------------------------------------|
| 1. Santa Barbara | a. Alar |
| 2. Connecticut tobacco fields | b. Asbestos |
| 3. Mobro 4000* | c. Carbon monoxide |
| 4. Love Canal, New York | d. Chemical accidents |
| 5. Johns-Manville | e. Chlorofluorocarbons |
| 6. Upper Housatonic River | f. DDT |
| 7. Three Mile Island, PA | g. Dioxins |
| 8. Seveso, Italy | h. EDB (ethylene dibromide) |
| 9. Cuyahoga River | i. Eutrophication (1960s) |
| 10. Lake Erie | j. Famous fire hazard |
| 11. Los Angeles and environs | k. Hazardous waste burial |
| 12. Bhopal | l. Hypoxia |
| 13. Global warming | m. Lead |
| 14. Acid rain | n. Low level radioactive disposal |
| 15. Chernobyl | o. Mercury |
| 16. Eggshell failure/eagles | p. Municipal waste disposal |
| 17. Reading, PA/Reading prong | q. Nitrogen oxides, sulfur dioxide |
| 18. Antarctic ozone hole | r. Nuclear accident |
| 19. Apples orchards products | s. Nuclear accident |
| 20. Exxon Valdez | t. Oil spill |
| 21. Beattie, NV; Hanford, WA | u. Oil spill |
| 22. Long Island Sound | v. PCBs |
| 23. Old water supply pipes | w. Radon |
| 24. Minamata, Japan | x. Smog |

*Clue: Itinerary: North Carolina, Louisiana, Gulf of Mexico, Yucatan, Cuba, New York

Day nature program at Spicebush Swamp Park.

Saturday, April 21, 1 p.m. — Earth Day Family Nature Walk at Westmoor Park. A general nature walk with comments relating to Earth Day issues and how they affect the Park and West Hartford.

Sunday, April 22, 10 am. — Bike tour of West Hartford parks and open spaces, departs and returns to Town Hall.

Sunday, April 22, 2 p.m. — Earth Day Ceremony at Town Hall.

The celebration of Earth Day makes it appropriate that the DEP's Natural Resources Center feature *The State of the World*, a publication of the World Watch Institute. With the statement, "Think globally, act locally" in mind, we offer this book on the status of a variety of environmental factors affecting the health of our earth; feeding the world, global warming, a peaceful economy, air and our health, and suitable future transportation are just a few of the principal subjects. This 253-page, soft-cover issue is \$7.50. Please include eight percent tax and \$2.00 handling. Send to DEP-NRC, Map Sales, Room 555, 165 Capitol Avenue, Hartford 06106.

The Maritime Center and Sierra Club invite you to join us at the **Maritime Center, Norwalk**, for Southwestern Connecticut's Earth Day 1990 Celebration — learn about, enjoy, and show your concern for your environment.

Earth Day 1990 at the Maritime Center will be a fun-filled and informative environmental fair for all ages. Earth Day 1990 will feature:

Demonstrations of oystering, wind surfing, sailmaking, and other activities that depend on a viable Long Island Sound.

Instruction on composting and recycling waste.

Live music and entertainment.

A report from Terry Backer, the official Soundkeeper.

The SoundWaters' boat — the ship that patrols and studies the Long Island Sound.

Exhibits on global warming, ozone depletion, ocean and ground water pollution, toxic waste and other issues



H I K E S & C A N O E T R I P S

EARTH DAY 20

FAIRFIELD COUNTY

- 1 Mianus Gorge, Stamford/Bedford, NY
- 2 Byram River Gorge, Greenwich
- 3 Devil's Den, Weston
- 4 Weir Preserve, Wilton



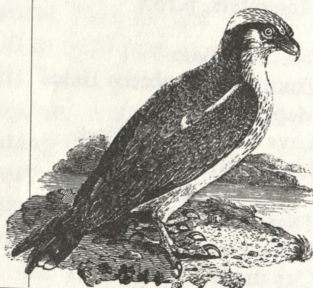
NEW HAVEN COUNTY

- 5 Milford Point, Milford
- 6 Westwoods, Guilford
- 7 West Rock Ridge State Park, New Haven



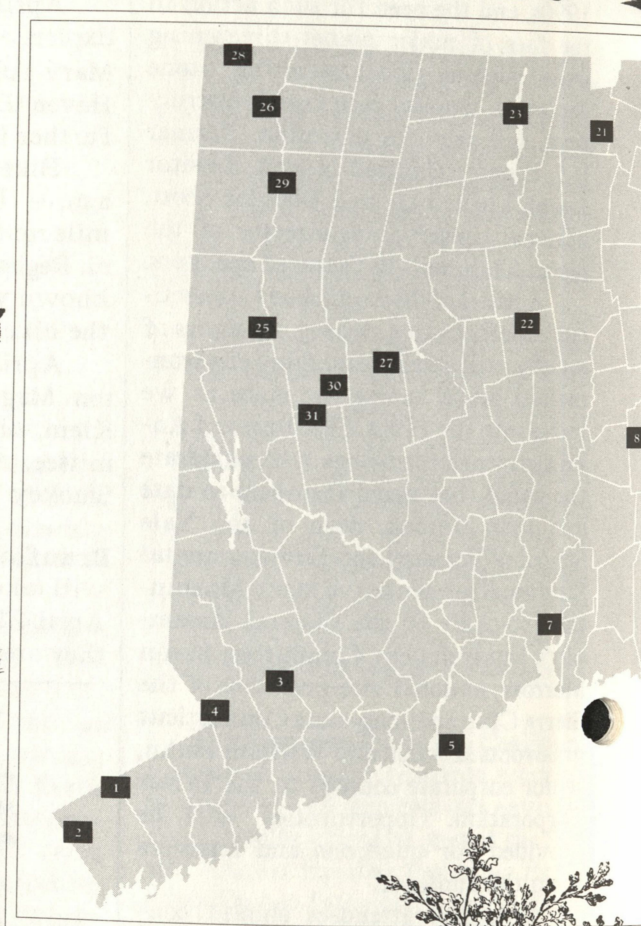
MIDDLESEX COUNTY

- 8 Higy Mountain, Middletown
- 9 Burnham Brook, East Haddam
- 10 Chapman Pond, East Haddam



NEW LONDON COUNTY

- 11 Poquetanuck Cove, Ledyard
- 12 Denison Pequotsepos Nature Center, Mystic
- 13 Milo Light, Montville
- 14 Baileys Ravine, North Franklin
- 15 Lower Connecticut River Canoe Trips
 - A) Lords Cove
 - B) Great Island Marsh
- 16 Hamburg Cove, Lyme



that concern us all.

A forum for hearing from and speaking to Leslie Carothers, Commissioner of the Connecticut DEP, Senator Joseph Lieberman, U.S. Representative Chris Shays, and members of the State General Assembly.

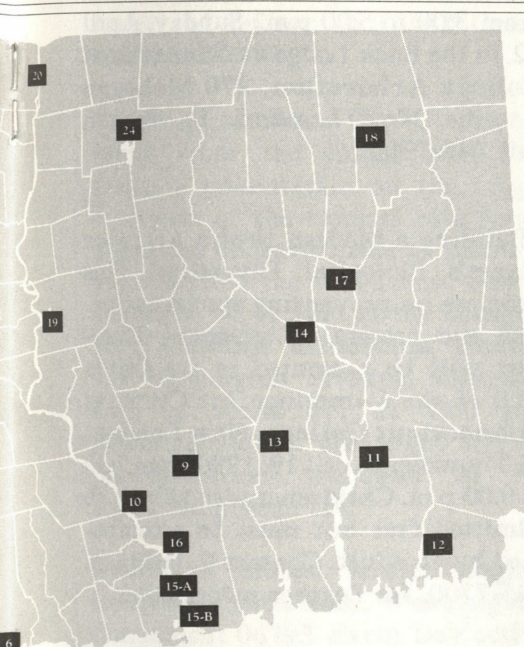
And for the kids — Earth Day 1990 presents sea chanties and story tellers, a chance to make mobiles and sculpture from recycled material, face painting, and fun with Captain John and the six foot shark.

Earth Day 1990. Everyone will be there. All around the world. Join us

here in Norwalk April 22, 1990, from 10:00 to 4:30. For more information, or to volunteer time or funds, contact Donna Schlagel of the Maritime Center at 852-0700, Ext. 203; or Leora Herrmann of the Sierra Club at 353-9468 (home) or 324-2828 (work).

Earth Day Festival, Audubon Center in Greenwich, 613 Riversville Road, Greenwich. Sunday, April 22, 10:00 a.m. to 4:00 p.m. A day of walks, programs, and demonstrations for the entire family. Programs will cover a broad range of natural history topics

FIELD TRIPS

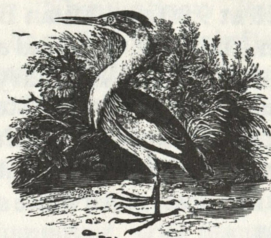


Date: Saturday, April 28, 1990

For additional information, please send a stamped, self-addressed #10 size envelope to The Nature Conservancy, 55 High Street, Middletown, CT 06457-3788 and we will forward directions and trip specifics to you.

WINDHAM COUNTY

- 17 Rock Spring, Scotland
- 18 Dennis Farm, Pomfret



HARTFORD COUNTY

- 19 Cotton Hollow, Glastonbury
- 20 Enfield Rapids, Suffield
- 21 McLean Game Refuge, Granby
- 22 Barnes Nature Center, Bristol
- 23 Barkhamsted Reservoir, Barkhamsted



TOLLAND COUNTY

- 24 Shenipsit State Forest, Ellington



LITCHFIELD COUNTY

- 25 Iron Mountain, Kent
- 26 Hamlet Hill, Salisbury
- 27 Bellamy, Bethlehem
- 28 Sages Ravine, Salisbury
- 29 Appalachian Trail, Sharon
- 30 Steep Rock, Washington
- 31 Mine Hill, Roxbury

The following activities are scheduled at Lutz Children's Museum in Manchester for Earth Week 1990:

Vacation week classes offered. Daily classes will be offered April 17-20 centering on the "Earth Day, Every Day" theme. Classes will include energy use, endangered species, and learning to take responsibility for environmental problems.

Tuesday, April 17: The Lutz Annual Frog Frolic. Our annual walk into the quiet, night-time woods to listen for and observe spring peepers. The program begins with a slide show during which participants will learn to identify Connecticut frogs. Reservations are a must.

Thursday, April 19, 7:00 p.m. — "Whales and Tales," a song and story program by Chris Rowlands, for children of all ages, that "teaches the importance of preserving and protecting these wise and ancient creatures with which we share our planet."

Saturday, April 21, 1:00 p.m. — "The Return of the Wolves" from National Audubon in Sharon. Our second program with a live timber and red wolf, will be held in the Manchester Community College Program Center. Tickets will be available at the Lutz Museum or at the door. This program will be the central activity for the town of Manchester's Earth Day celebration.

Saturday, April 28, 1:00 to 3:00 p.m. — A "Happening" at the Lutz Children's Museum. The theme will be learning about the importance of trees and how we can help save them by recycling paper.

Any questions? Call Pat at 643-0949.

including pond life, wildflowers, trees, geology, honeybees, butterflies, and more. There will also be live animal programs, exhibits, films, and more. Contact Gina Nichol, 869-5272, for further information.

On April 26, there will be a special observance of the fourth year of the Chernobyl disaster, including an environmental delegation of Soviet scientists, politicians, and activists. For information, write: PACE, Inc., 101 Lawton Road, Canton 06019; or call (203) 693-4813.

The DEP's Division of Forestry will be cohosting an **Arbor Day** celebration with the Bushnell Park Foundation at the State Capitol on Friday, April 27, between noon and 1:00 p.m. If the governor is available, he will be presenting Tree City USA banners and plaques to the mayors/selectman from Hartford, Fairfield, and Stamford. This will be followed by a memorial tree planting (sponsored by the Bushnell Park Foundation) and a tree identification tour led by Ed Richardson of Glastonbury. For further information, phone Fred Borman at 566-5348.

Valley Earth Day Celebration, **Ansonia Nature and Recreation Center**, Sunday, April 29. "Make Earth Day Every Day." Come to our celebration for a day of fun and to find out how you can help your environment. Programs begin at 6:30 a.m. with a Native American prayer service. Presentations and demonstrations, exhibits and guided nature hikes will take place all day. Ray Cycle, Connecticut's recycling superhero will be featured at 2:00 p.m. A new games festival at 4:00

p.m. Contact Donna Lindgren at 736-9360 for further info.

The Science Museum of Connecticut, in cooperation with Westmoor Park, will present three family programs for the town of West Hartford during the month of April as part of the "Earth Day Celebration." The programs will be held at the West Hartford Library on April 5, 12, and 19, at 7:30 p.m. Topics are: Oceans and Spills; Endangered and Threatened Species; and Acid Rain. Each program will feature a short film, followed by hands-on activities. The programs are expected to last one hour.

Activities at the Museum during the month of April for "Earth Day" will include a special family program, as well as visitor handouts. A school program developed around National Wildlife Federation material ("Earth Day is Everyday") will be offered during the school year.

For further information, call Hank Gruner at (203) 236-2961.

As part of the state's Earth Day effort, 15,000 environmental education kits will be made available to every elementary school teacher and secondary science teacher in Connecticut. Jointly prepared by the DEP and the Department of Education, these kits will contain hands-on activities to give children a sense of the air, water, land, and biotic environments in which we live.

For further information, please contact the Earth Day 20 office at (203) 865-ERTH.



EARTH DAY 20
CONNECTICUT
1970-1990

Connecticut Audubon Society will hold a Sanctuary Walk at the G.T. Smith and S.E. Hubbell Wildlife Sanctuary in Milford on Saturday, April 28 at 9:00 a.m. Milan Bull, CAS staff ornithologist, will lead a walk at the Milford Point Sanctuary, which includes a unit of the Stewart B. McKinney National Wildlife Refuge and provides important habitat for several rare species. Advance sign-up is required.

The Connecticut Audubon Society will hold an Open House at the Morgan R. Chaney Preserve in Montville on Saturday, April 28 from 10:00 a.m. to noon. A healthy walk on a beautiful, 232-acre sanctuary in the New London area, led by expert CAS naturalists. No charge. Call Lauren Brown at 259-6305 for more information.

April 8-28; Art Exhibit; "Celebrating the Earth through Art." Northwest Park, Windsor. Work by Kathy Goff, Roberta Hogan, Dan Gaskill, Barbara Van Winkelen, Chris Rowlands, Ray Hardy, Robert Cmarca, John Foley, Cathy Drake, and Ruth Cameron. Hours; Sat. and Sun. 10 a.m. - 3:00 p.m.; Monday and Wednesday 12 noon to 5:00 p.m. For more information call the Park at 683-0774, ext. 238.

Earth Day, Every Day. Twentieth observance of the annual national Earth Day will be held at Hungerford Outdoor Education Center, 191 Farmington Avenue, Kensington 06037, April 21, from 11:00 a.m. to 3:00 p.m. Games and craft items using recycling materials featured. Nature walks, sail boat making and racing, raft rides. Lunch available. At 1:30, Chris Rowlands will present "Whales and Tales": additional fee for this program \$3.00 (limited seating). Please purchase tickets in advance. Call Donna Welch or Cheryl Burke at 827-9064 for ticket information.

The National Earth Day Organization, operating out of Stanford University in California, has proclaimed April 17, 1990, as Recycling Day. Earth Week runs from April 16 to April 21.

"Global Gobbledygook: Storytelling for Families." This environmental awareness program features folk songs and early rock 'n' roll combined with environmental issues. You must pre-register to attend and the cost per family is \$2.00. The show will be held from 3:00 to 5:00 p.m., Sunday, April 22, in the Buck Lodge at Connecticut College Arboretum, 270 Mohegan Avenue, New London. To register, call 445-7700.

"Building a Modern Noah's Ark: Our Planet's Biological Diversity." This program on preventing species extinction and promoting biological diversity will be presented in the Olivia Hall of the Cummings Art Center at Connecticut College, New London, on Thursday, April 19, 1990 from 7:30 to 9:00 p.m. Children under 12 will be admitted free but must be accompanied by an adult. Contact R. Fishman, 445-7700, for further information.

"Earth Day Every Day" at West Rock Nature Center, New Haven/Hamden town line. 12:00-4:00 p.m. Open house. Mammal care unit, bird unit, and museum open as usual for people to discover wildlife/nature up close and personal. Contact Assistant Ranger, Wray Williams at 787-8016 for more information.

Wild Cats: Species in Trouble at the Nature Center for Environmental Activities, Inc., 10 Woodside Lane, Westport 06880. Sunday, April 22, 1990 from 1:30-3:30 p.m. Elaine M. Burke, director of Future Promise Exotic Feline Research Center, will be here with a live African serval cat and a clouded leopard, the most endangered wild cat species. Through discussion and exciting, colorful slides, you'll find out about the environment. Future Promise is a non-profit volunteer organization working to save threatened and endangered feline species. Ms. Burke is currently working on the third edition of her widely recognized technical manual, *Exotica: a Practical Guide for Individual Caretakers and Admirers of Exotic Felines*.

White Memorial Conservation Center, Litchfield. Saturday, April 21 at 1:00 p.m. Singer, songwriter and guitarist Nancy Tucker will share her comedy, inspiring compositions of human experience and spirited guitar instrumentals evoking the audience to laugh and reflect. Call Jeff Greenwood, 567-0857

"A Tropical Heat Wave." Alberto Mimo from the Connecticut DEP makes a presentation on the fragile ecosystem of the tropical rain forest. Slides and artifacts made of plants or animals from the rain forest will be displayed. To be held at the **Hungerford Outdoor Education Center**, 191 Farmington Avenue, **Kensington**, on April 28, at 1:00 p.m. Recommended for ages eight and up, pre-registration requested at the regular admission fee.

American Indian Archaeological Institute, Curtis Road, Washington, Connecticut 06793. Earth Day activities at AIAI; 4/21/90. Films throughout the day; ceremony and planting of indigenous species (time to be determined). AIAI display at Charles Ives Center; 4/22/90. Display at Indian encampment will juxtapose traditional with present-day lifeways. Contact Betsy Glassman at 868-0518 for more information.

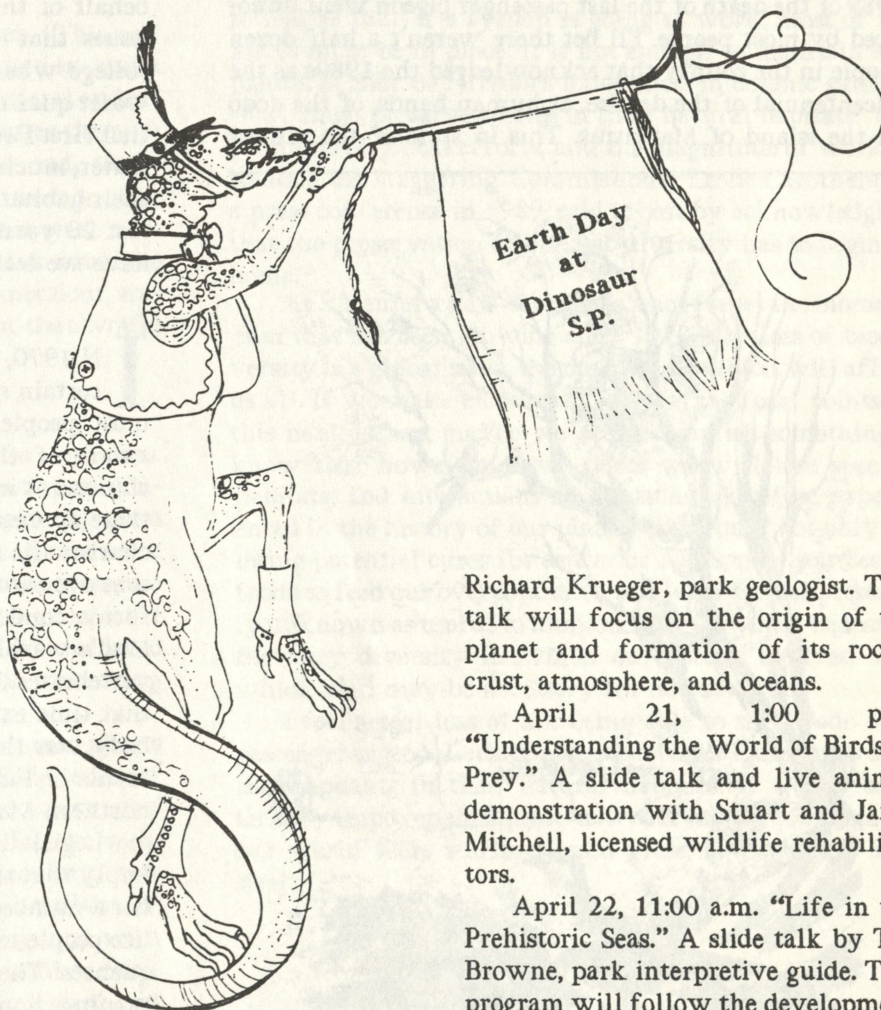
From April 7 to April 30, Lisa Toto's stunning and eloquent current photographs of Chernobyl and Pripiyat will be on display at the **Old State House** on Main Street in downtown **Hartford**. Accompanying the pictures and text will be an unusual exhibit of products that relate to energy efficiency, energy conservation, and benign renewable energy technologies. Sponsored by PACE, Inc. (People's Action for Clean Energy), the show is open to the public. Unique energy-related gifts and products will also be

sold in the gift shop of the Old State House.

Connecticut Audubon Society presents "Composting: Returning Earth to Earth" at the **Fairfield Nature Center**, 2325 Burr Street, **Fairfield**, on Saturday, April 21 from 10:00 a.m. to 2:00 p.m. Contact Lauren Brown at 259-6305 for more information. At 10:00 a.m. Orvis Yingling, master composter, will discuss home composting, demonstrating it is easy, safe and sanitary. At 11:00 a.m. a DEP representative will give an overview of municipal composting. At 2:00 p.m. you will tour the Fairfield state-of-

the-art municipal composting plant, which transforms leaves, grass clippings, and sewage sludge into fertilizer at substantial savings to the taxpayer. No charge; advance sign-up is required.

All Connecticut high school students interested in participating in Project SEARCH, the DEP's week-long camping and research program, should contact Alberto Mimo, Division of Education and Publications, Room 108, 165 Capitol Ave., Hartford 06106; phone (203) 566-8108. ■



Richard Krueger, park geologist. This talk will focus on the origin of the planet and formation of its rocky crust, atmosphere, and oceans.

April 21, 1:00 p.m. "Understanding the World of Birds of Prey." A slide talk and live animal demonstration with Stuart and Janet Mitchell, licensed wildlife rehabilitators.

April 22, 11:00 a.m. "Life in the Prehistoric Seas." A slide talk by Ted Browne, park interpretive guide. This program will follow the development of living things in the ancient seas, as shown by the fossil record.

April 22, 1:00 p.m. A slide talk and walk with Eric Thomas, park naturalist. Explore the park's red maple swamp from the boardwalk or in the water.

For further information, phone (203) 529-8423. ■

The following special programs will be held at **Dinosaur State Park in Rocky Hill** on the 20th anniversary weekend of Earth Day:

April 21, 11:00 a.m. "The Evolution of the Earth." A slide talk by

Answers: Quiz, p. 11:

1. t, 2. h, 3. p, 4. k, 5. b, 6. v, 7. s, 8. g, 9. j, 10. i, 11. x, 12. d, 13. c, 14. q, 15. r, 16. f, 17. w, 18. e, 19. a, 20. u, 21. n, 22. l, 23. m, 24. o.

Conservation Biology in the '90s

by
Leslie Mehrhoff
State Biologist
Connecticut Geological and
Natural History Survey

HUMANS HAVE A KNACK for remembering anniversaries. We celebrate birthdays, actually anniversaries of birthdays, wedding anniversaries, and we celebrate anniversaries of important events in our lives. It is probably for the same reason that we tend not to celebrate anniversaries of things of which we are not proud or just don't want to remember. The 75th anniversary in 1989 of the death of the last passenger pigeon went unnoticed by most people. I'll bet there weren't a half dozen people in the county that acknowledged the 1980s as the tricentennial of the demise, at human hands, of the dodo on the island of Mauritius. This in spite of the almost

daily use of its name as a synonym for clumsiness or stupidity. We pick and choose the anniversaries we wish to celebrate, but all anniversaries are probably worth remembering somehow.

April 22, 1990, marks the 20th anniversary of the first Earth Day. Lots of good came from that Spring day in 1970 when many people took time to speak out on behalf of the environment. I can remember some of the issues that were presented at the small New England college where I was an undergraduate. Overpopulation, water quality, and recycling were obvious components of that first Earth Day. I don't remember, at least at my alma mater, much being said or done about the loss of species or their habitats. Have we made progress on that front in the last 20 years? What has happened since then and what have we learned?

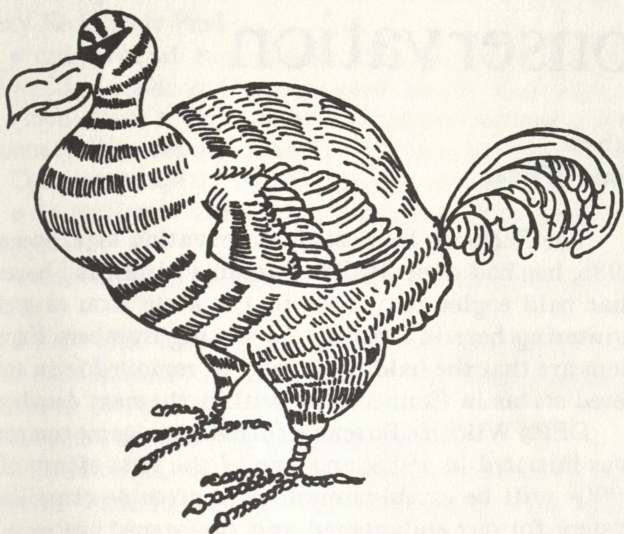
IN 1970, THERE WAS CONCERN about the loss of certain species. The great whales were declining and most people who cared about the environment were aware of this. Likewise the elephants in Africa, the rhinoceros in Malaysia, or the orangutan of Borneo. But these species, which have come to be referred to as the charismatic megavertebrates, were big and showy. There was even concern for small vertebrates such as the California condor, the peregrine falcon, and even the Kirtland's warbler. Few people were concerned about other vertebrates. The snail darter was virtually unknown at that time except to a handful of fisheries biologists. Nobody was thinking about Xerces blue butterflies in California or Furbish's louseworts on the St. John's River in northern Maine and adjacent Canada.

Legislation always takes time so it would be unfair to imply that there was little concern for the loss of species. For a number of years biologists had been trying to mobilize people to be concerned about extinction and its consequences. The wheels of legislative progress were slowly turning, however, and by 1973 the federal government passed landmark legislation in the form of the Endangered Species Act of 1973. This charged the government with the responsibility for the stewardship of our planet's natural heritage. This law was only a foot in the door, however.

But the legislation did give states the push they needed. Many states, including Connecticut, followed the federal lead by creating their own programs for preserving species. In 1974, The Nature Conservancy established its



CATCHING PIGEONS. From Samuel G. Goodrich, Recollections of a Lifetime (1857), Vol. I.



first State Heritage program in North Carolina. (This network grew to include every state in the nation and a number of Latin American countries.) The federal endangered species legislation offered support to states through cooperative agreements that gave technical and, sometimes more importantly, if the state took advantage of it, financial assistance. At first only vertebrates were covered by the law but in the late 1970s plants could be included under cooperative agreements. Connecticut was the first state to sign a cooperative agreement that would cover plants and animals.

IN THE MID '70s, A LITTLE FISH and a big dam occupied the environmental conscience of most concerned Americans. The battle, mostly fought in the news media, was a costly and time-consuming one. There were no right or wrong answers. The good that came from the Snail Darter vs. the Tellico Dam was the raising to a level of prominence not only the preservation of species issue but also, and equally important, the issue of preserving species in their natural habitats.

Connecticut began to inventory the state's rare plants and vertebrates in 1975 with the hiring of a field team for the Connecticut Geological and Natural History Survey of the DEP's Natural Resources Center. In 1976, we published a preliminary report on almost 300 vascular plants and 100 vertebrates thought to be rare and possibly endangered in Connecticut. In 1982, the DEP joined with The Nature Conservancy and the National Audubon Society to create, as part of the Connecticut Geological and Natural History Survey, the Connecticut Natural Diversity Data Base. This Data Base acts as a clearing house for information on Connecticut's Species of Special Concern. Today, the Data Base responds to over 100 requests a month and keeps track, through its maps, computer and manual files, of over 2500 species or natural community occurrences.

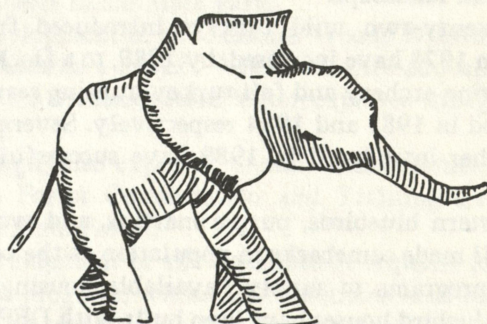
The impetus created by the federal program, coupled with the concerns of an environmentally enlightened

public in Connecticut, reached an important goal in 1989. That year brought the passage of a state law for the creation of State Endangered and Threatened Species lists and the requirement that all state agencies make every attempt possible to avoid the destruction of populations of state-listed species and their habitats. A state list of endangered and threatened species also helps the state and private conservation groups by identifying those species in need of protection. By identifying what The Nature Conservancy would call "the last of the least," we can begin to protect Connecticut's natural heritage.

AS THE 20TH CENTURY CLOSES, we are facing a new concern, that of preserving biological diversity. This is not just those species that are rare and endangered, but all of the world's natural diversity. Our goal is to protect species in their natural habitats. We have come to realize that, if a system is going to work, most of the pieces must be in place. It is not enough to maintain elephants in zoos, or Furbish's louseworts in botanic gardens — we must preserve species in their natural habitats. The prospects of global efforts, and the magnitude of work to be done, are staggering. Commissioner Leslie Carothers, at a press conference in 1989, said it best by acknowledging that the preservation of biologic diversity has to begin at home.

As we enter a new decade, let's not forget the momentum that has been growing since 1970. The loss of biodiversity is a global issue, the outcome of which will affect us all. If we make biodiversity one of the focal points of this next decade, maybe we can accomplish something. I know this, however; if we don't we will lose species; habitats, and interactions at a rate never before experienced in the history of our planet. We would not only be losing potential cures for cancer or AIDS, new sources of foods to feed our overpopulated world, or species presently unknown as useful to humankind, we would be losing the very diversity in which our species evolved and which well may be necessary for our survival.

I feel a real loss at not being able to see a dodo or a passenger pigeon. Let's save the Furbish's louseworts and the elephants in their natural habitats. It would be a terribly impoverished place to live if all we could see of our world were starlings, reed grass, and concrete and steel. ■



Changes in Conservation

by

Margot Callahan

Senior Communications Officer

"The biggest impact Earth Day had was to increase awareness of the value of open space and wetlands and to cause a big turnaround in our use of toxics as they affected plant and animal species.

"Public consciousness might not have happened quickly enough without Earth Day '70. Sometimes it takes a crisis, to get things done, but if we'd waited till the crisis it might have happened too late to save some of these wetlands and salt marshes that support the Long Island Sound fisheries, for example. In 1970, everybody was talking about pollution, but nobody was working on it."

Those are the observations of Dennis DeCarli, Deputy Commissioner of DEP's Division of Environmental Conservation. Though the predecessor agencies to the Bureaus of Fish and Wildlife and Parks and Forests go back some (to 1866 and 1913 respectively), Environmental Conservation too has seen significant changes in the last 20 years.

At the beginning of the '70s, Connecticut had no wild turkeys or fisher, and the Connecticut River hadn't seen a native Atlantic salmon for well over a century.

The old Fish and Game Commission's major focus, DeCarli notes, was "fish and *game*, animals that were hunted and fished, and supplying fish and pheasants for sportsmen."

Interestingly, however, until 1975 Connecticut had no deer management program. The State's deer qualified only as "agricultural nuisances" and were hunted by land owners only. Thanks to managed hunting — in 1989 Connecticut issued 44,495 deer hunting permits and deer hunting generated an estimated \$5 million in sport-related expenditures — Connecticut now has a deer herd that has increased *only* 50 percent (from 19,000 to 32,000) since 1975. (Herds can double every three years if conditions are favorable and can alter habitat and affect other species' success as well as that of the forest.)

"We've considered restoring anything that was indigenous to the State at any time," says DeCarli, "though some larger species like the timber wolf and the Eastern cougar aren't compatible with Connecticut's urban/suburban landscape."

Twenty-two wild turkeys introduced from New York in 1978 have increased, by 1989, to a flock of 6,000 and spring archery and fall turkey hunting seasons were initiated in 1981 and 1984 respectively. Several pairs of the fisher introduced in 1989 have successfully reproduced.

Eastern bluebirds, purple martins, and wood ducks have all made comebacks in population as the beneficiaries of programs to supply "available housing" — over 2,500 bluebird houses have been built with DEP-supplied wood and DEP maintains over 1,000 wood duck houses.

The Shepaug Dam eagle observation area, opened in 1985, has had over 26,000 human visitors and hopes are that bald eagles may nest in the state soon as well as wintering here in steadily increasing numbers. Expectations are that the bald eagle may be removed from endangered status in Connecticut within the next decade.

DEP's Wildlife Bureau's formal non-game component was initiated in 1986, and one of the first efforts of the 1990s will be establishment of a credible classification system for our endangered and threatened species.

In fisheries, too, lots has happened over two decades. In 1972, just after DEP's formation, the new Quinebaug Valley Hatchery opened. It regularly produces 800,000 or more stockable trout each year. During the same period, anadromous fish restoration programs, begun in 1965, moved forward with construction of fishways in the Connecticut River system.

The release of the first Connecticut river-strain juvenile salmon in 1979 was the most significant advance of the 1970s. In 1981 a record 497 Atlantic salmon returned to the river. For the rest of the 1980s, return remained steady but were smaller than hoped for — the expectation is that 1990 runs will support a recreational Atlantic salmon fishery before the decade is out.

The first shad since 1796 passed through the Turner's Falls and Vernon dams on the upper Connecticut in 1983, and 1983 and 1984 also saw exceptional shad runs.

Similarly, restoration of Chesapeake striped bass has come a long way all up the Atlantic Coast.

During the last two decades Connecticut has become more active in both marine and inland fisheries research and monitoring and management, with fisheries biologists studying lobster, flounder, largemouth bass, and northern pike. The DEP also developed new, more sophisticated computerized commercial fisheries statistics monitoring capacities (to track a catch that's valued at over \$12 million annually).

More "concrete" achievements include development of the Kensington Salmon Holding Facility and work, to begin in 1990, on the Department's new Marine Resource Headquarters on the Connecticut River in Old Lyme. The facility will house marine fisheries and boating, law enforcement, and Long Island Sound programs and the Connecticut River Oil Response Team. There will be both storage and dockage for DEP boats as well.

"Though our parks have been hurt by budget limitations, we've made major improvements in all of our shore facilities," said DeCarli.

Among these are:

- establishment of a 402 acre nature preserve at Hammonasset Beach State Park;

- campground renovation and a new bathhouse at Rocky Neck State Park;

- campground renovation, new entrance complex, utilities, and roads at Hammonasset Beach State Park;

- monument repair and archaeological survey of Revolutionary War resources at Fort Griswold State Park;

Completed capital improvements elsewhere include:

- renovation of Lake Waramaug State Park beach and campground;

- renovation of Heublein Tower's exterior in the early '70s;

- 1984 total exterior renovation of Gillette Castle;

- establishment of the Antique Machinery Museum in Kent in 1984.

Projects currently in progress include:

- historic renovation of mansion and site at Harkness Memorial State Park, with construction to start during 1990;

- new entrance complex, parking area, and landscaping at Dinosaur State Park, with construction starting this spring;

- closure of the former landfill which is the first effort in recreational development of Silver Sands State Park;

- complete renovation of Indian Well State Park, including entrance, roads, parking, buildings, with construction to start in late 1990;

- construction of three new beachfront bathhouses at Sherwood Island State Park, starting this spring.

In addition, DeCarli points out that in 1988 the General Assembly provided the DEP with \$20 million a year for five years for land acquisition. "We'd never had funding for land acquisitions before," he notes, "with the exception of the Pittman-Robinson and Dingell-Johnson hunting and fishing land acquisition monies from federal excise taxes on sporting equipment."

During the '70s and '80s DEP has added significant properties:

- Bluff Point State Park/Coastal Reserve, an 800-acre property which is one of the largest undeveloped pieces of Connecticut's coastline;

- West Rock Ridge State Park, a total of over 1,100 acres including Lake Wintergreen, in Hamden;

- Shakespeare Theater (1983), now undergoing \$7.5 million in renovations;

- Weir Farm, a 1988 acquisition likely to become Connecticut's first national park as well as the nation's first cultural park;

- Red Cedar Lake, in Lebanon, a 1989 acquisition which will address the state's need for additional swimming areas

- the Pequonnock Valley Tract, nearly 400 acres of scenic valley in Trumbull acquired in 1989.

Currently the Bureau of Parks and Forests is developing restoration plans and plans for educational facilities at Putnam Memorial State Park, the site of Revolutionary General Israel Putnam's encampment ("Connecticut's Valley Forge"), and Fort Griswold State Park, the scene of the Battle of Groton Heights.

The passage of State Heritage Park legislation in 1986 and selection, in 1989, of the Thames Estuary and Windsor Locks Canal as the first such historic sites for renewal adds another new dimension to the state's recreational opportunities.

The State's parks have seen steadily increasing use, particularly during the "energy crunches" of the past two decades, and have added new recreational opportunities including canoe camping on the Connecticut River and back packing trails along with amenities like free Charter Oak passes for seniors, a State Park pass for frequent park users, and a camping reservation program.

Off-season use has also increased, with cross-country ski trail networks at key locations being one of the major responses to this increased interest.

State Parks have also attempted to foster tourism with the addition of special events at various sites.

Looking at recreation in the state from the perspective of state and other facilities, in 1989 DEP's Planning and Development Bureau was recognized for producing one of the best Statewide Comprehensive Outdoor Recreation Plans (SCORP) in the country, a plan that the National Park Service is using as a model for other states. Planning and Development has also taken the lead in land planning in DEP's Natural Resource Planning Process.

Meanwhile the State Forestry Program has upgraded management of state-owned forest land to where it has recorded totals of over \$1 million annually in recent years in sales of forest products and barter arrangements.

Recognizing Connecticut's "urban/suburban" character, DeCarli says, a brand new urban forestry program will work closely with towns to help them protect and improve their forestry resources.

TO KNOW IT'S TO PROTECT IT!

"We've made 'modest strides' in environmental education," says DeCarli, who lists off:

- construction and development of the Franklin Wildlife Management area as a center for the state's mandatory conservation education/firearms safety education programs, which have received "AAA" ratings every year since 1982;

- construction of the Kellogg Nature Center, adjacent to the Osborne Homestead (acquired in 1983) in Derby;

- construction of the exhibit center, nature trail, and print casting area at Dinosaur State Park;

- construction of the Meigs Point Nature Center at Hammonasset Beach State Park;

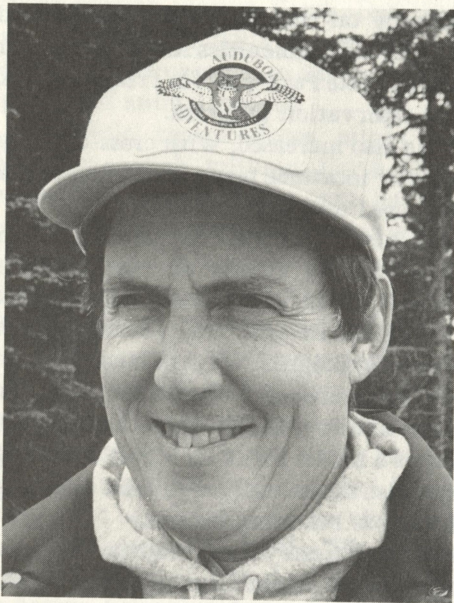
- development of the Sessions Woods Wildlife Management area as a Project WILD wildlife education and conservation demonstration center, expected to begin during 1990;

- design, also expected to start this summer, of the Goodwin Forest Conservation and Training Center at Goodwin State Forest;

- development of the Connecticut Aquatic Resource Education program, whose 130 volunteer instructors are dedicated to increasing public awareness of fish, fishing, and the aquatic environment. ■

The Next 20 Years

Connecticut citizens look to the future.



Marshal Case

Twenty-six years ago, I was entering the field of conservation education just out of college. Earth Day was six years away and EPA and DEP weren't even on the drawing boards.

Today, one need is very clear: Youth education must receive much more attention in the next 20 years. Adults continue to draw up environmental agendas and prepare the way for children and grandchildren. This isn't good enough. We are still losing too much ground. We must involve youth in the decision-making process and give them an opportunity to be part of the solution. They will wind up being involved as young adults instead of waiting until mid-life.

As we head into the 1990s, the Decade of the Environment, we need to provide many opportunities for youth involvement and encourage them to be part of the solution to a healthy Earth. National Audubon plans to help position at least ten million dedicated youth/adults by the year 2010, including a significant number of the new urban majority. The urban majority must know and

appreciate the value of open spaces. They will hold the power of the vote and key to the environmental future.

(The author is vice-president/education for National Audubon.)



Mary Anne Guitar

Here's my wish list for Earth Day 2010. I'd like to see no need for NIM-BYs (Not-In-My-Backyard) because "Neighborhood Earth" would be everybody's backyard and would be protected.

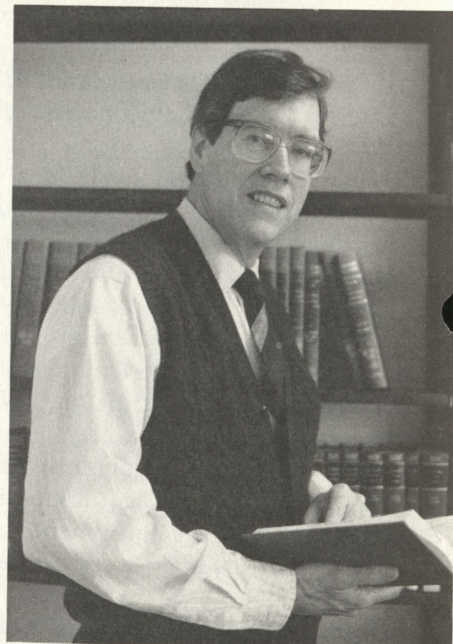
I'd like to see people making a living without making a mess.

I'd like to see enough greenspace for all.

As concerned conservationists, we'd like to see these good things happen too, but as experienced soldiers in the field, we know they won't unless we regain the momentum that brought us wetlands legislation, the open space acquisition program, and farmland preservation. In June, 1962, William H. Whyte gave then-Governor John N. Dempsey a "Proposal for Action" to save Connecticut's natural resources. This little blue book guided the conservation movement through its most successful period. We need another guide to show us, in Whyte's words, "how to make

what we have go further." Now is the time for specifics, time to harness Earth Day energies with a conservation vision for Connecticut.

(Mary Anne Guitar is the former first selectman of Redding, former chair of the Connecticut Siting Council, and founding member of the Redding Land Trust.)



Thomas W. Sharpless

Connecticut currently meets three of the six air quality standards set by the Clean Air Act. Sulfur dioxide, nitrogen dioxide, and particulate lead compounds are at levels consistent with good health. Unfortunately, we fail the ozone standard by a wide margin. The remaining two pollutants, carbon monoxide and suspended particulates in the fine range, exceed their standards by small margins.

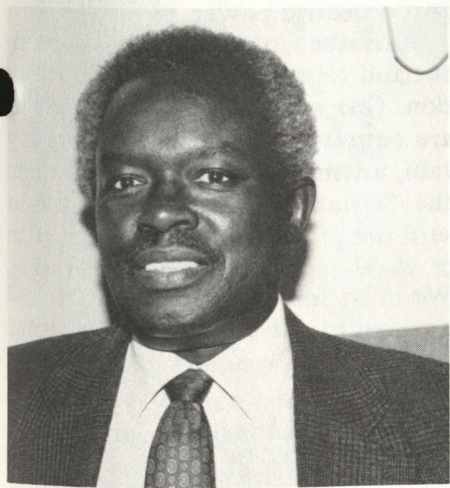
Prediction: By the year 2000, the state will have achieved the standard for carbon monoxide and fine particles. We will also come very close to achieving the present standard for ozone. However, it has

been known for some time that the 120 parts per billion (ppb) ozone standard is not health-protective. The standard is at a level of ozone that can be demonstrated to cause lung damage.

Prediction: By the year 2000, the Environmental Protection Agency (EPA) will have been forced to revise the ozone standard to a lower value. Perhaps the lower value will be 80 ppb, the original value that was set in 1970.

Prediction: Air quality personnel at the DEP and at the regional level will map out a strategy for attaining the ozone standard by the year 2010. The strategy will include a significant reduction in stack emissions of nitrogen oxides and an annual reduction in the number of miles of travel by vehicles powered by gasoline and diesel engines.

(The author is a professor at the University of Hartford.)



Moses Taylor

I have worked and lived in Connecticut for more than 10 years. I feel Connecticut is a special place to live. To keep Connecticut a special place, we must understand the tremendous job of maintaining our natural resources and rural landscape. At present, we have approximately one acre per person. We must try to maintain our balance of nature and population.

Problems like solid waste, water quality, affordable housing, open space, and availability of good farm land will need to be looked at carefully. A great deal of effort from the con-

servationists and the citizens of Connecticut will be required to solve these problems. With more people to provide services for, we will be confronted with new challenges and opportunities. I believe we need to formulate strategies that improve coordination of services among organizations to solve environmental issues and problems during the next 20 years and beyond.

We can do this by identifying priorities and addressing critical issues related to the environment. If we are to provide direction and leadership to Connecticut citizens, we must take stock in our natural resources and manage them in a manner that best provides for our future.

(The author is the state coordinator of Resource Conservation and Development Areas.)



Trudie Lamb Richmond

Native people, living in harmony with the environment, have occupied Connecticut for at least 10,000 years. Early explorers' accounts describe the richness and beauty of New England. The Connecticut River was considered to be the most important ecological thread that tied all of New England together. How would those same explorers describe this land today?

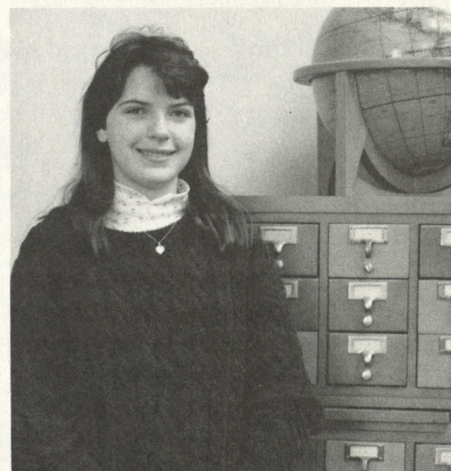
Indian philosophy teaches that decision-making is based on what effects it will have on the next seven generations. The choices made looked out for the welfare of the children still to be born. Native people lived in harmony with nature, practiced conservation, and respected natural laws.

Laws that taught that all living things are equal; all life is equal. Civilization has abused "Mother Earth" because people do not respect or believe in these laws of nature. We live in a world of convenience and instant gratification. As we attempt to survive giant earthquakes, monstrous hurricanes, the eruption of volcanoes long silent, the slow extinction of plant and animal life, we should realize this constant abuse is not going unnoticed. We are perpetuating disharmony.

Our technology is so advanced that we now have a microbot so small it can be injected into the bloodstream. Like a flea-size robot, it will clean out cholesterol deposits in our arteries. Where is that same technological ability to take care of the natural environment?

We need to do more than just separate our trash and replace styrofoam cups with paper ones. We need to believe and obey the precepts of natural law — to accept that all life is equal and then do something about it. If not for ourselves, then for the children yet to be born. If you have that understanding, then all things will survive. Life is a circle of all living things, each dependent upon the other. If that circle is broken then life ends. It's that simple.

(The author is director of education at the American Indian Archaeological Institute in Washington, Connecticut.)



Anne Mellow

There are many important environ-

mental problems which could drastically change the quality of our lives in 2010. Global warming, ozone depletion, and water pollution are just a few factors in the future of our planet. Yet when I think of the next 20 years, one issue stands out in my mind — apathy. Terrible indifference in many of the years past toward the world in which we live caused many of the problems facing us. Certainly, at present, the environment is fashionable. George Bush proclaimed during his campaign that he was an environmentalist. Of the two major fast-food chains in America, one has stopped using non-biodegradable plastics and one is attempting to recycle its plastic. Every newspaper or magazine on the newsstand has an article about the environment. However, by 2010, other issues and trends may be getting the headlines again.

Therefore, I hope that every person will do his or her best to give time and support the environmental cause. The "Earth Day" spirit must be captured and magnified during the next 20 years with the anticipation of the Earth Days to come.

(The author is an eighth grader in Colchester.)



Mary B. Walton

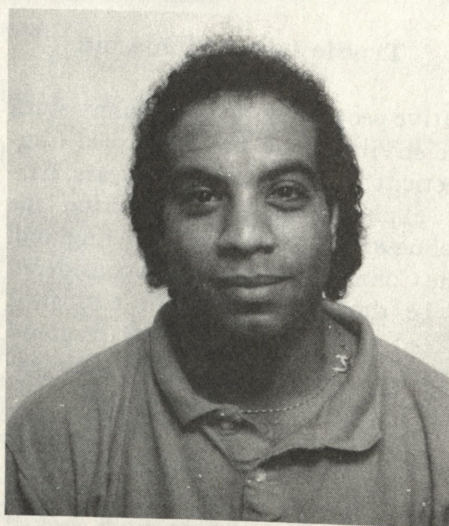
Every environmentalist knows the present dangers threatening our Earth. Hope arises that some of these man-made threats will be eliminated by 2010.

In 2010, I hope all developers, state agencies, and public officials will have learned the significance of wetlands, and with the help of an adequately staffed and financed DEP, instituted a program to preserve our remaining wetlands, without having destroyed too many in the process of "mitigating" their loss.

My desire is that by 2010 the state would achieve at least a 50 percent recycling goal in the reduction of solid waste, with recycling industries established to reclaim the recycled materials. In the intervening years, I hope the Solid Waste Management Plan would have included dividing the state into regions in which only one resource recovery plant would have been permitted, using the latest state-of-the-art technology and supervision. The year 2010 would be about the right time to start the phase-out of older resource recovery plants to reflect the decreased flow of burnable garbage — based on an educated public, a reduction in packaging, and the re-use of recycled products.

My overall wish for 2010 is for the Earth and its inhabitants to be living in a healthy, clean, environmentally protective world.

(The author is a member of the Council on Environmental Quality and a long-time environmental activist in Eastern Connecticut.)



Jose O. Torres

As a college student, I have witnessed the lack of education on environmen-

tal protection. Schools make certain courses mandatory in order to "broaden" our knowledge about the world, but neglect to dispel our ignorance about an environment that is quickly deteriorating.

With development on the rise in the state of Connecticut and recent increases in the population of our state, our waste facilities are operating at more than full-strength. Only within the past few years has the public been made aware that our landfills are overflowing. Residents of the state don't favor the idea of more dumpsites out of fear that their neighborhood may be the next landfill site. The only solution to this growing concern is a reduction in solid waste.

One of the obvious solutions is extensive recycling. Incineration to produce electric power and reduction of excessive packaging will be useful as well. For example, the plant in Bridgeport reduces solid waste by 90 percent while providing 10 percent of Bridgeport's electric power.

Another major issue for Connecticut and New England is water pollution. Our sewage treatment facilities are outdated. During times of heavy rain, untreated sewage spews out into the Sound. The federal government will not provide aid for the renovation of these facilities in the near future. We must come together as a state and a region to put water pollution on our list of environmental priorities.

None of this will be possible unless we decide to make the environment our priority for the next 20 years. To do this, we must sensitize the public. Educational programs are needed at all levels from grammar school to college. Only through education can the public be made aware of its limited resources. We will foster a generation of taxpayers who support government programs in the area of environmental protection. We might also encourage our bright young minds to enter fields that work toward a solution to these problems. If nothing else, we can help to rid our country once and for all of the attitude that our natural resources are undepletable.

(The author is a student at The University of Connecticut at Storrs.) ■

Endnote



"And God called the dry land Earth; and the gathering together of the waters called he Seas: and God saw that it was good."

Gen.1:11.

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